CURTISS PREDICTS QUICK AZORES TRIP

Aircraft Designer Outlines Conditions for 1,200 Mile Leg in Ocean Flight.

RIVAL ROUTES COMPARED

Navy Planes Due to Have Good Sailing—Wind, Loads and Speed Are Elements.

By flying a curving route a considerable distance longer than the straight line distance of 1,200 nautical miles from Newfoundland to the Azores the NC planes will gain nine hours from favorable winds, according to calculation made public yesterday by Glenn H. Curtiss, joint designer with naval officers of the big seaplanes. Mr. Curtiss's figures are based upon average weather conditions in May over the Atlantic.

In the opinion of Mr. Curtiss the navy has chosen not only the airplanes best adapted for the transatlantic venture, but also the best possible route. He says:

"There has been a difference of opinion as to whether the Newfoundland-Ireland or the Newfoundland-Azores-Portugal route is the better. The former is more direct. As one who has been interested in transatlantic flight since 1914, however, I can see five distinct advantages to the southern course. They may be listed as follows:

"1. It requires a maximum flight without landing of almost seven hundred miles less than does the northern route. The distance to Flores, the first Azores island, is only 1,200 nautical miles, as against 1,890 to the Scilly Islands, the nearest point off the Irish coast.

"2. It avoids the dangerous fog belt which lies to the east and northeast of Newfoundland.

"3. It is attended by more favorable weather generally—warmer, clearer and freer from atmospheric disturbances.

"4. It is in the path of steamer traffic and hence offers a greater element of safety in case it is necessary to make a descent in midocean.

"5. It is in the path of winds which under normal circumstances will increase by 40 per cent. the speed of the airplanes.

"The NC planes could doubtless have gone by the northern route. It is shorter than the southern. If the transatlantic voyage wer eto be admitted a hazard, better indeed to get it over with in the quickest possible time, like a cold shower. But the navy, I believe, wishes to prove that for the right type of plane the Atlantic trip is not a hazard. The present flight is to be the demonstration of how others like it can be made regularly."

Atmospheric Conditions Studied.

Observations have shown, Mr. Curtiss says, that wind and other atmospheric elements are in the main constant in any part of the ocean during a given month. Between Trepassey Bay and Flores in the Azores the winds generally blow from the northwest, that is, directly on the tails of the seaplanes, thus adding wind speed to engine speed. The winds do not, of course, blow in one straight line from starting point to destination, but by comparatively slight changes of course the greatest advantage may be taken of the winds, just as a sailing ship sometimes lengthens her course to gain speed.

The flying boats, he predicts, will be blown away from the fog belt once they are through a small zone of cross winds just off Cape Race. In this connection it will be recalled that Commander John H. Towers expressed the opinion before leaving Rockaway that the most critical period in the entire flight of 3,925 nautical miles will be the first two or three hours after leaving Trepassey Bay. During this period the engines, not thoroughly warmed to their work, will not be at greatest efficiency, the planes themselves will be laden to capacity with a gross load of something more than fourteen tons each, necessitating high engine speed, the winds probably will be unfavorable and fog may be encountered.

Once fairly started on the long trip, however, the winds, blowing at an estimated velocity of thirty miles an hour at 1,500 feet, will be of great aid, the load of each will decrease at the rate of 650 pounds an hours, due to gasolene consumption, engine speed will be decreased and high visibility gained. According to Mr. Curtiss, if a curving course is followed to take full advantage of the winds, the flight would be made in twenty hours.

Whether this wind-line course has been selected by the navy is not known, as Commander Towers would not disclose his plans in advance of leaving Trepassey Bay, but it is known that the navy planes allow about twenty hours for the journey. It is possible that the navy fears to place full reliance upon theoretical winds which, during the day and night in which the flight is undertaken, may practically be absent.

Evene should the navy entirely disregard winds the seaplanes will carry enough gasolene to make the 1,200 mile journey with a small margin of gasolene left over. An average speed of about sixty-three knots must be maintained to reach Flores in twenty hours. The four motors of each NC craft will consume 650 pounds of gasolene, more than 100 gallons an hour at the start, but by the time the vicinity of the Azores is reached the seaplanes will be burning only 360 pounds of gas an hour.

To Fly at Economic Speed.

Mr. Curtiss also points out that average weather conditions are questionable, saying that the British fliers have been waiting at St. Johns for more than a month for the usual easterly winds. The navy ships, he says, probably will not wait for ideal conditions, although of course they will not rush precipitately into head winds or stormy weather.

"Wind is not the only matter to be considered," Mr. Curtiss says. "The speed at which an aeroplane flies is determined by a number of considerations. The NC boats will not fly as fast as they can, for to fly at top speed would not be economical under the circumstances. Top speed uses up more fuel in proportion to distance covered than certain lower speeds, and in a trip like this gasolene and oil must be carefully conserved. In other words economy of energy is necessary for the purpose in view. The flying boats are in a sense like a runner. To start for the Azores at top speed would be somewhat like beginning a mile run with a 100 yard dash. They might draw on their fuel supply to a dangerous point. In any trip, therefore, where a saving of gasolene is desired the motor is run at what is called the economic speed. This is the speed at which the greatest ratio of miles an hour to gasolene consumed may be obtained.

"For instance, going at seventy-five miles an hour might demand a larger consumption of gas in proportion to speed than going at seventy miles an hour. But the economic speed also varies with the amount of load carried. For instance, at the beginning of the present trip a speed of seventy-one miles an hour (regardless of wind) ought to be most efficient. This speed is higher than it would be if 28,500 pounds did not have to be supported. Consequently as this weight is reduced by the consumption of oil and gas the economic speed lessens, less power being required to support less weight, and less forward progress.

"Thus if a flight of thirty hours were to be made the economic speed would have decreased at the end of the voyage from seventy-one to sixty-one miles an hour. This would have followed a decrease in load of 1,000 pounds the consumption for that period of oil and gasolene. The reduction would have been marked by the shutting off of one of the three motors with which the flying boat had been propelled after its takeoff, it being possible to support the aeroplane with two motors after about 6,500 pounds of gasolene and oil had been consumed, leaving a reserve of two motors during the remainder of the trip."

Planes May Go Past Flores.

Mr. Curtiss estimates the time of the flight to St. Michael, 150 miles from Flores, which may be passed in the air if the seaplanes are able to go further, at twenty-one hours.

'If normal conditions prevail the boats would have at the beginning a flight for three hours against a cross wind. They would fly at 71 miles per hour in order to sustain their load of 28,000 pounds, and would gain from the wind three miles an hour, flying 222 miles at the end of the first three hours. The next three hour period would find them with a wind directly on their tails, going at a speed of 70.5 miles, raised to 100 miles an hour by the wind. The sixth hour would thus find them 522 miles out. From that point on the winds would be favorable. Making from 99 to 95 miles an hour, the aeroplanes would swing slightly to the southeast for the first nine hours, and would then change to an almost due east course to take advantage of changing winds, swinging again to the southeast at the fifteenth hour of flight. Flying this course they would arrive at the Azores."

It would be possible, Mr. Curtiss pointed out, for the fliers to steer directly for the Azores, allowing for drift. This would not be as economical a procedure as the one just described, but might be preferred on account of its simplicity.

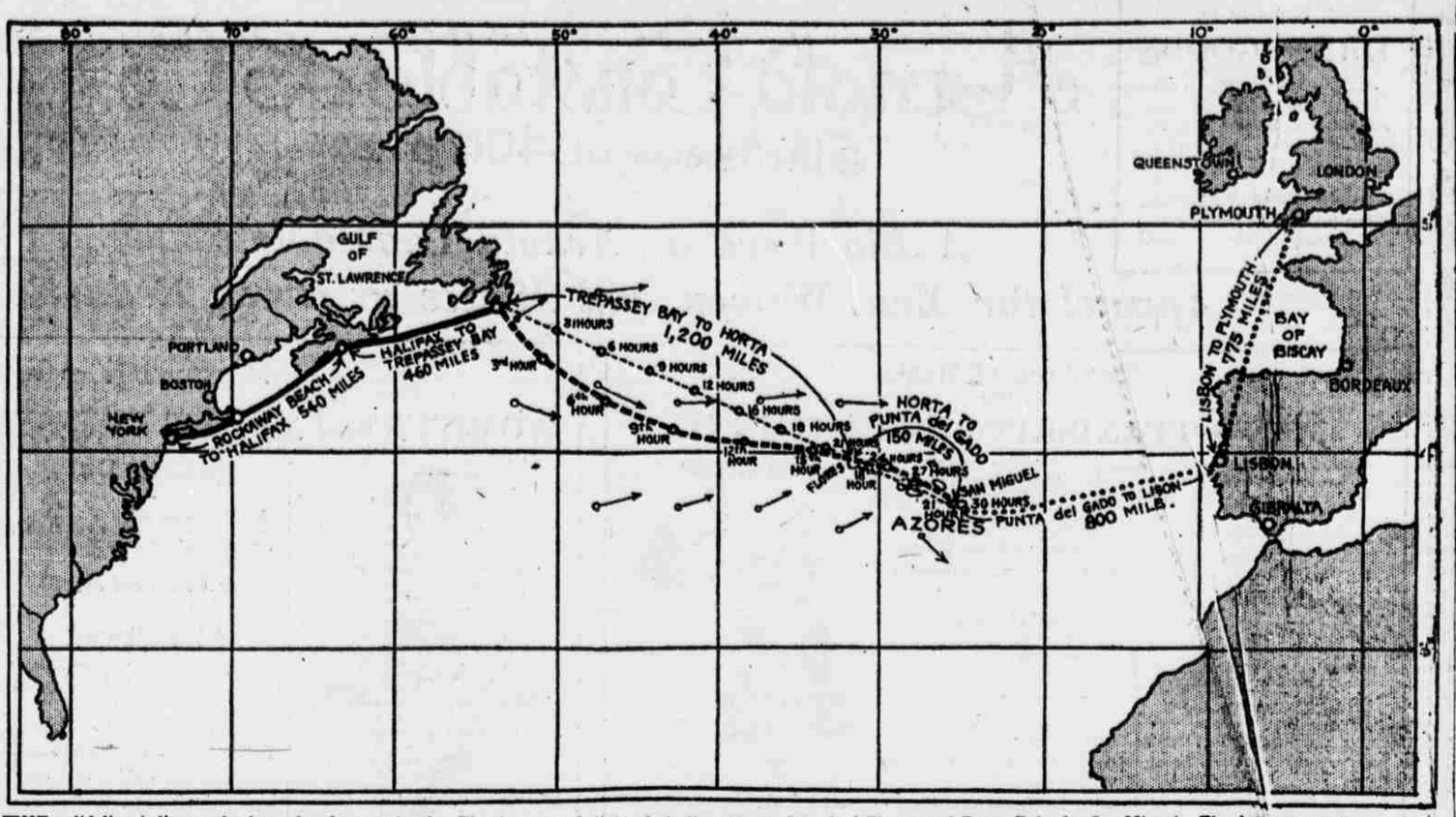
As the Azores route follows for a considerable distance the course of transatlantic steamships passing between the United States and Europe these vessels will join with the destroyers and dreadnoughts on duty in eliminating chances of disaster to the seaplanes. The NC boats can ride on a fairly high sea, make repairs and ascend again. Mr. Curtiss states that one of the engines will be held in reserve after the ship gains in altitude on the start of the flight, and another also will be idle after the first fourteen hours, when the seaplanes will be light enough to fly easily on two motors.

Mr. Curtiss it will be remembered was the constructor of the flying boat America, in which in 1914 Lieut. Porte intended to cross the Atlantic. The America's trip was cancelled when the war broke out in August, 1914, recalling Lieut. Porte to service in the British navy. British flying boats have been modelled on the America and the present NC planes may be considered an outgrowth of the 1914 Curtiss model, the first multi-motored flying boat to take the air.

Lansing Going to England.

PARIS, May 10.—Secretary of State Lansing will leave Paris for England tomorrow. His trip, the Secretary states, is merely for three or four days rest.

Comparison of Air Routes to the Azores and Direction of Prevailing Winds.



THE solid line indicates the laps already completed. The heavy and light dash lines show the two possible routes to the Azores, the heavy curving line showing the course taking advantage of the prevailing winds and the light straight line the direct course to Horta, Island of Flores, and Ponta Delgada, San Miguel. The dotted line indicates the remainder of the flight. The arrows indicate the direction of prevailing winds, which reach a velocity of thirty miles at a height of 1,500 feet.

BIG BRITISH 'BLIMP' TO CROSS SEA SOON

Ocean Flight by Dirigible Within Three Weeks, Says Charlton.

Special Dispatch to THE SUN.

ATLANTIC CITY, May 10.—Official word that R-34, largest of the new type British dirigibles is slated to make a transatlantic flight within the next three weeks, was given out to-day at the "inside" dedication of the Atlantic City Airport, a luncheon given in honor of Brig.-Gen. L. E. O. Charlton, British air attache, whose nation is the first in the world to create such a post.

The luncheon, held in the submarine grill of the Hotel Traymore, was notable for the representative aerial experts of many nations who were at the table as well as the message of Gen. Charlton that the Atlantic City Airport was the probable destination of the British "blimp" now undergoing final tuning up for the big hop to American shores.

"It is intended to send a dirigible across to this coast this month—or if some unforseen holdup occurs, as early as possible next month," Gen. Charlton said. "As to the actual terminus, I have strong hopes it will be Atlantic City, although I have not received any official notification of the landing place so far."

It is believed, however, this city will receive the honor because of the strong invitation that has been sent to the British air ministry and by reason of the cordial relations early established by the Aerial League, the Pan-American Aeronautic Federation, under whose auspices the convention now in progress here is being held. Continuing, Gen. Charlton said: "I might prognosticate that the era of aerial transatlantic bridge building is to-day having its foundations laid. Heretofore the oceans have been the sole connecting link between the Americas and Europe but the time when the air will unite them is now very near.

"I have visited your great air port here and been impressed with its wonderful facilities and possibilities. Atlantic City is a happy augury. Its cosmopolitan roster of visitors assures wide dissemination of the aerial developments that are bound to be an integral part of the resort's life in the future through the splendid courage and confidence of the men responsible for the creation of this port."

Among those introduced at the affair included Brig.-Gen. L. E. O. Charlton, Gen. Collardet, French High Commission; Col. T. E. Gilmore, O. B. E., assistant British air attache; Capt. Pierre Edgarde Bosc, French High Commission; Capt. Dibovsky, Russian navy aviation service; A. Touchkoff, Russian navy, commander aviation service; Capt. Harold Sylwan, military attache, Swedish Legation; Capt. Stellan Elliot, Royal Swedish Commission; Lieut. Santiago Campusano, Cuban air service; Capt. C. L. Berriso, military attache, Uruguayan Legation; Harry Bacharach, Mayor of Atlantic City; Albert T. Bell, president Aero Club of Atlantic City; Henry Woodhouse, vice-president Aerial League of America; Major Reed C. Landis, second ranking American ace; Rear Admiral Bradley A. Fiske, U. S. N.; Capt. Robert A. Bartlett, Capt. Granville A. Pollock, Lieut. Marion Suisberger, Lieut. (J. G.) C. H. Payne, U. S. N.; Lieut. G. W. Shaw, U. S. N.; Capt. Hugh L. Willoughby, Augustus Post, secretary Aerial League of America, and Glenn H. Curtiss.

VICE-ADMIRAL KERR ENTERS AIR CONTEST

Arrives at St. John's With Handley-Page Biplane.

ST. JOHN, N. F., May 10.—Vice-Admiral Mark Kerr, the oldest active pilot in the British Air Service, for 54 is a ripe old age in the air service, arrived here to-day on the steamship Digby with a huge Handley-Page biplane, in which he intends to fly across the Atlantic.

After carefully supervising the loading of the dismembered biplane on freight cars for transportation to Conception Bay, where an airdrome has been established, Admiral Kerr announced that the flight is planned more as an expedition to study the charting of an ocean air route than as a pioneer journey across the ocean. Admiral Kerr is chief pilot, and his companions in the venture are Major T. Gran, an Antarctic explorer, and Brackley, a British aviator, who made more than seventy-five air raids over German positions.

Both Hawker and Raynham, transatlantic aspirants, were on hand to greet Admiral Kerr when he landed. The Admiral expressed the opinion that the two aviators have a good chance of getting across the ocean with their flight machines. The assembling of the Handley-Page plane will take three weeks, and the flight may be made any time after that. With her transatlantic load of gasolene, oil and supplies the Handley-Page will weigh 16,000 pounds. A powerful wireless will be part of her equipment.

NC-4 IS HELD UP BY RAIN.

New Engines Installed in Plane Work Perfectly.

CHATHAM, Mass., May 10.—Rain and a strong northeast wind led Lieutenant-Commander A. C. Read and his crew to abandon a tentative plan to start his flight to Halifax in the NC-4 to-night. Whether they will set out to-morrow to catch up with the NC-1 and the NC-3, which flew to-day from Halifax to Trepassey Bay, Newfoundland, will depend chiefly upon the weather. The outlook to-night was not encouraging.

Tests this afternoon of the two new engines installed to replace those damaged in the trip from Rockaway on Thursday showed them to be working perfectly. Lieutenant-Commander Read expressed eagerness to rejoin as soon as possible the other planes preparing to cross the Atlantic.

WRECKED SEAPLANE FOUND.

Destroyer Calls for Assistance in Search for Bodies.

BOSTON, May 10.—Wreckage of the naval seaplane lost at sea while returning to the Chatham air station after a flight over Boston during the parade of the Twenty-Sixth Division on April 25 was reported to-day by the destroyer McDermut forty miles east of Provincetown.

The commander of the McDermut said that efforts to turn the wreckage over in the hope of finding the bodies of Lieut. J. S. Buchanan, Ensign John G. Howard and Electrician Bernard Tornes, who were lost with the seaplane, had been unsuccessful. The coast guard cutter Ossipee was ordered to aid in the search of the wreckage.

SIMS TO TELL OF NAVY'S PART.

In Carnegie Hall to-morrow night Rear Admiral Sims will tell the story of the part played in the war by the United States Navy, and especially the story of what it did in cooperation with the British navy. The meeting will be a public testimonial to the respect and admiration in which Admiral Sims is held by the American people.

George W. Wickersham will preside and addresses will be made by Nicholas Murray Butler, president of Columbia University; the Rev. Dr. William T. Manning, Rector of Trinity Church, and Henry Clews. When these men have spoken there will be presented to Admiral Sims a material indication of the feeling New York has for him. Admission to Carnegie Hall will be free of charge, but all tickets have been reserved. These are available at the office of the Civic Forum, 17 East Forty-fourth street.

AMERICAN DIRIGIBLE MAY CROSS ATLANTIC

C-5 Expected to Start When Seaplanes Hop Off.

ST. JOHN'S, N. F., May 10.—The United States Navy may start an airship on the transatlantic flight almost simultaneously with its seaplanes. Soon after the information ran that the C-5, latest of American naval dirigibles, would leave Montauk Point for Newfoundland in a few days it was asserted that if this trial trip is successful the blimp probably will be sent on its way to England.

The American project, kept secret during the long period of preparation, became known to-day when the cruiser Chicago arrived to act as a base ship for the dirigible. St. John's will be the terminus of the 1,200 mile test run and the starting point of the overseas flight if one is attempted.

The site of the landing field here has not been determined. It may be the airdrome of either Harry G. Hawker or Frederick G. Raynham, the British aviators, who still are wind bound with their planes ready to fly the Atlantic.

The date of the C-5's departure from Montauk Point will depend, it was stated, on the completion of local arrangements and the weather which then prevails.

The Chicago, flagship of Rear Admiral Spencer S. Wood, commanding the first division of the Atlantic fleet, had been ordered to proceed hurriedly from New York to St. John's. A group of naval aviation experts on board, six officers and twelve men, were assigned to duty as staff of the flying field to be established here.

The Chicago had aboard also supplies for the base, including carboys of gas for replenishing the dirigible's supply. These had been long prepared and bore stencilled labels showing they were intended for "trial trip." They were piled high on the Chicago's decks and rolled about somewhat when the cruiser encountered heavy weather, but were undamaged.

The Chicago ran through waters described as "thick with icebergs" at times. The lookout on one occasion reported thirty in sight. One iceberg partly blocked the narrow mouth to the harbor here, but the Chicago negotiated the entrance without difficulty.

The decision to test out the C-5 at the present time, it was said, was made because of the opportunity to make use of the string of patrol vessels laid out for the naval seaplanes.

SECOND LEG OF AIR TRIP DONE FINELY

Continued from First Page.

understood that it probably will be within a week.

There is a full moon on the night of May 14, which would be of great help to the flyers, for they must fly one full night on their trip to the Azores. It is probable that the start here will be made in the middle of the day so that the planes will be beyond the zone of Newfoundland fog before the night comes on. The midday start would mean that a daylight landing early next morning could be made at the Azores.

On his first attempt Commander Towers lost touch with the NC-1, both by wireless telephone and with telegraph, when the leading plane was some 150 miles from Halifax. A thirty mile wind sprang up and aided the NC-1 as she came to the final stage of her journey.

She was escorted into Trepassey by a naval scout plane which was cruising off the island waiting for the huge craft to arrive. The scout was piloted by an American officer, and is one of those which will be used to study wind and atmospheric conditions at the altitudes at which the seaplanes will fly.

The navy supply ships Prairie, Aroostook and Hisko are stationed here at present with supplies and mechanicians ready to make any minor repairs close examination may show the planes to need.

Naval officers who are stationed here on the supply ships, studying the trans-Atlantic flight situation as a whole, are inclined to regard Col. Porte's big Handley-Page seaplane as the rival which is most likely to get across. They think that both Hawker and Raynham, who are relying on light scout biplanes with only one engine, are not apt to succeed, especially as they are taking the longer route of 1,900 miles. They are outspoken in their admiration of the nerve of the Britishers, but at the same time express grave doubts as to whether one motor can stand the strain of a non-stop flight of 1,900 miles.

Lieut. Tinker Arrives.

Lieut. C. A. Tinker, an American naval officer, has arrived here as special representative of Franklin D. Roosevelt, acting Secretary of the Navy, who is particularly interested in the flight. Mr. Roosevelt has watched tests made of the machines at Rockaway and has made a flight in one of them.

Naval officers pointed out the fact that of the three planes which started from Rockaway the NC-1 is the only one which has had no trouble. This is the original NC craft, launched last fall, which made several long distance flights before and just after the signing of the armistice. At that time she carried a Davis gun and machine guns, but had only three motors. The other planes, it is said, have only recently been built and had done no long distance flying until the start of the present journey.

The two seaplanes were moored out near the supply ships. They will not be taken out of the water here or at any other place on the route to Plymouth, because their great weight and bulk make special facilities necessary. All necessary repairs can be made while they rest on the water.

It was said here to-day that most of the sixty destroyers and five or six dreadnoughts which have been ordered to participate in the patrol of the route of flight are now at their stations. Their radio equipment makes a chain of communication which stretches the whole length of the Atlantic. When the planes start on the Atlantic flight proper their radio equipment will be used to give bearings, latitude and longitude, information concerning storms, and other data to the seaplanes. On their decks will be numbers which will enable the crews of the seaplanes to get their location without recourse to wireless. By night warships' powerful searchlights will sweep the sky, focusing on clouds or banks of fog, illuminating these so that signals may be seen many miles off.

Accident Is Averted.

The NC-1 narrowly escaped being driven on the beach when she alighted. As the big craft "taxied" toward its mooring place a naval launch ran alongside and extended a rope, which the aviators seized. The NC-1's engines were then stopped, but the wind veered the plane about and the aviators lost their grip on the rope. The plane drifted to within fifty yards of shore before the engines could be started again and the plane brought to a standstill.

Before Lieutenant-Commander Bellinger and his crew left the NC-1 to go aboard the Aroostook they ran up the American flag which had been taken in at the start of the trip from Rockaway Beach. The Lieutenant-Commander said the flight was made at an altitude of about 2,000 feet, adding that the visibility had been poor and the weather rough, but that the motors had performed excellently. The planes were navigated without communication with four of the guardships, although all were observed by the crew.

The trip was entirely uneventful, Lieutenant-Commander Bellinger asserted. He said the crew had been so little tired that they regretted it was impossible to start for the Azores to-night, taking advantage of admirable weather reported at sea.

VENTURE REGARDED AS SURE OF SUCCESS

Navy Officials in Washington Are Optimistic.

WASHINGTON, May 10.—Arrival at Trepassey Bay, N. F., of two of the three American navy seaplanes which started from Rockaway, N. Y., on the transatlantic flight, insures the success of the whole enterprise in the opinion of naval officers here.

While detailed reports from Commander John H. Towers probably will not be received for a day or so, it is believed he would have communicated promptly had he encountered any serious difficulty either with his machines or with the arrangements for guiding the flight by radio compass signals.

The third plane, the NC-4, was still at Chatham Light, Mass., to-night, refitting to continue the trip to Trepassey Bay. Lieut.-Commander Read, in charge of the plane, may get started to-morrow, and it was generally expected at the Navy Department that the actual passage across the Atlantic via the Azores would not be attempted until the NC-4 also reached the Newfoundland jumping off place. The decision rests, however, with Commander Towers, and may be dependent largely on weather conditions. Arrangements have been completed by the Navy Department to insure adequate weather reports for the entire course on which Weather Bureau experts can calculate the probabilities in advance.

It may be some days before the men and machines at Trepassey Bay are ready for the long flight to the Azores. This is the longest leg of the journey—1,200 to 1,350 nautical miles—depending upon the landing place selected as the seaplane division approaches the island. The nearest point to Newfoundland is Horta, on the island of Fayal, but Punta del Gado, 150 miles further eastward, will be reached if possible.

The NC-1, commanded by Commander Bellinger, is considered as having made a remarkable flight from Rockaway to Trepassey Bay, covering just 1,000 nautical miles. The total flying time for the plane over this course was six minutes less than sixteen hours, or an average of more than sixty-two knots an hour, according to unofficial calculations. If that average is maintained Punta del Gado could be reached in less than twenty-two hours of flying, and Lisbon, Portugal, the first European stop, is only 800 nautical miles from that place.

Undoubtedly, it was said, the officers and men aboard the planes will need rest and the machines need thorough overhauling before the actual flight for Europe is started. It will be a terrific strain upon them covering the next two legs.

Jamaica Has Parcel Tax.

KINGSTON, Jamaica, May 10.—For the purpose of meeting a deficit amounting to $700,000 the Legislative Council has decided to impose a special tax of 25 cents on each parcel unloaded here from steamships. Commercial travellers also will be subject to a tax.